

Dispatcher Training

Working with the National Weather Service



Near Creston on March 22, 2011



Courtesy Kevin Skow



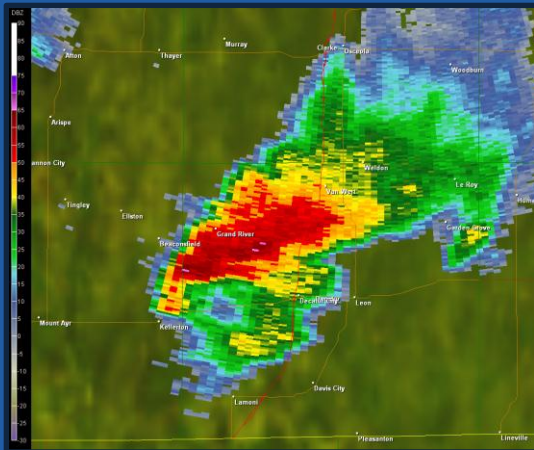
Wind Damage, Tama Co. July 11, 2011



Building a Weather-Ready Nation

Dispatcher Training

- What is the National Weather Service (NWS)?
- Understanding our role and services
- Severe weather for dispatchers
- What the NWS needs to know from dispatchers
- When to contact the NWS
- Optimizing communication
- Case Study



Southern
Iowa
April, 2011

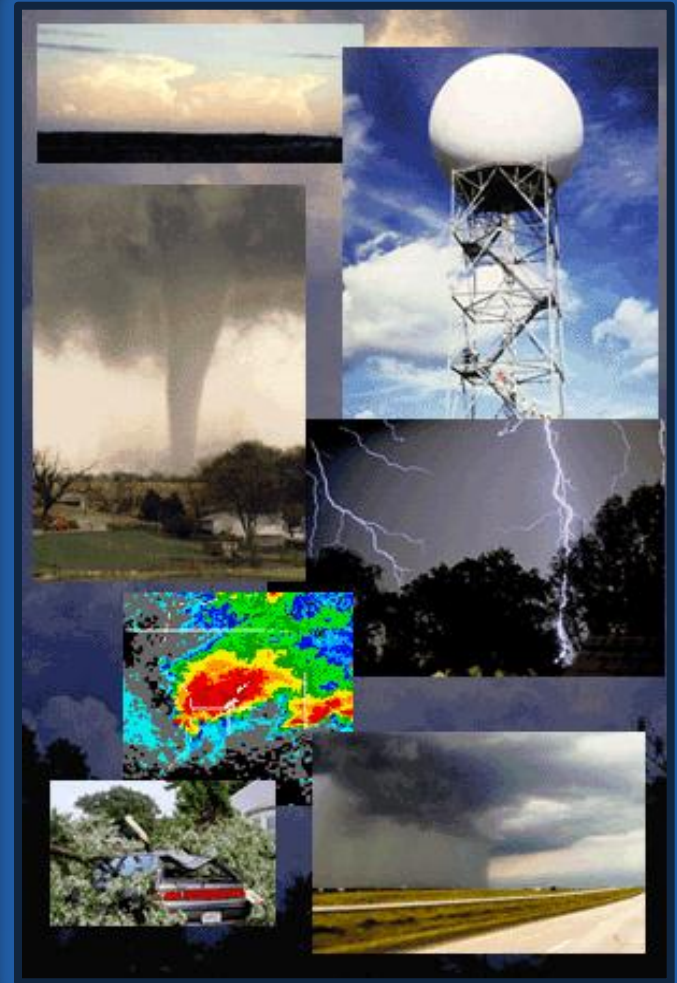


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What is the National Weather Service?

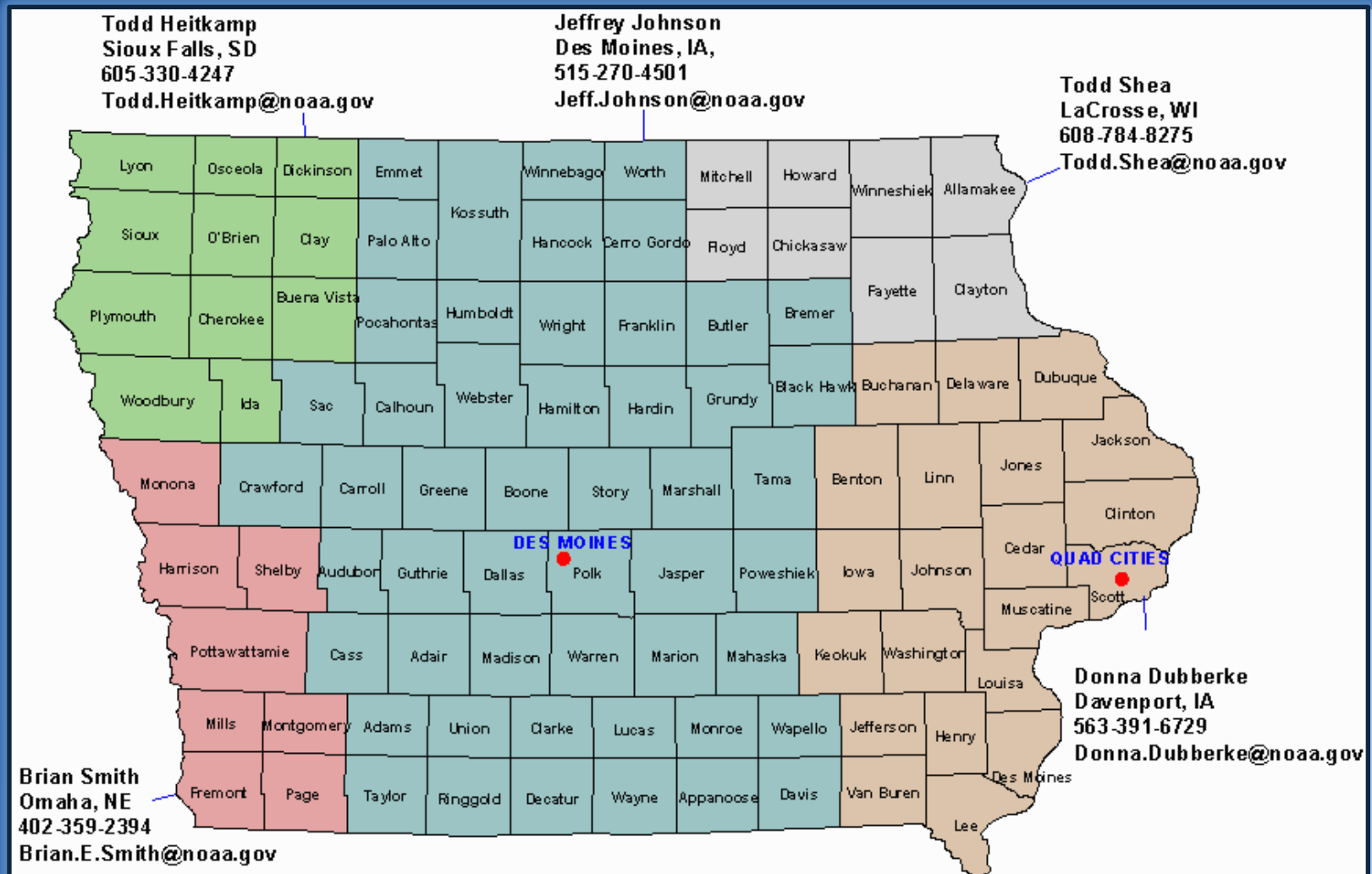
- A federal government agency created by Congress, with roots back to the Civil War
- Part of NOAA – National Oceanic & Atmospheric Administration

Mission: Protection of Life and Property



Building a Weather-Ready Nation

What is the National Weather Service?



National Weather Service responsibility areas in Iowa



Building a Weather-Ready Nation

What is the National Weather Service?

- Total staff of 23 people
- 24 hour shift coverage
- Rotating shifts
- Provides continuous warning and forecast services

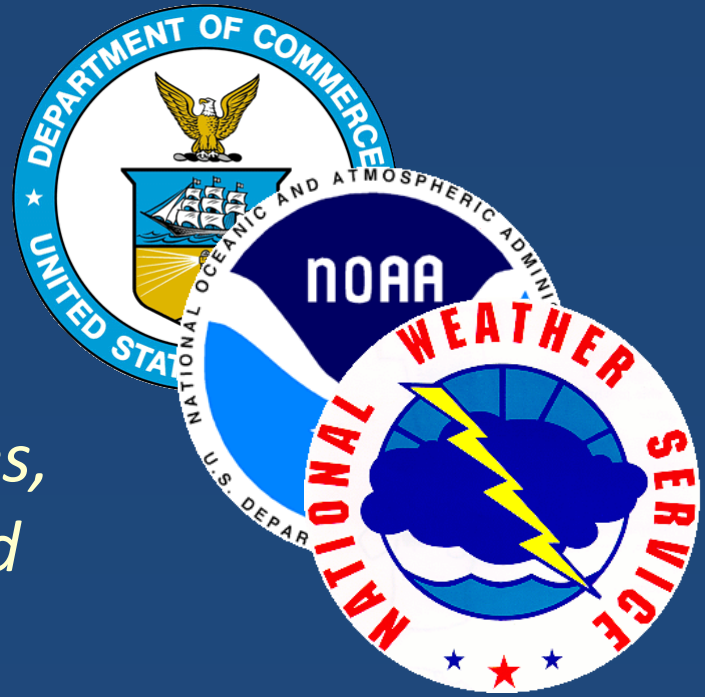


National Weather Service Office Staffing and Operations

Understanding Our Role and Services

National Weather Service Mission Statement

"The National Weather Service (NWS) provides weather, hydrologic, and climate forecasts and warnings for the United States, its territories, adjacent waters and ocean areas, for the protection of life and property and the enhancement of the national economy."



Building a Weather-Ready Nation

Understanding Our Role and Services

- We can't stop storms!
- We can't knock on every door and tell them it's coming!
- What can we do?



How can we protect property and save lives?



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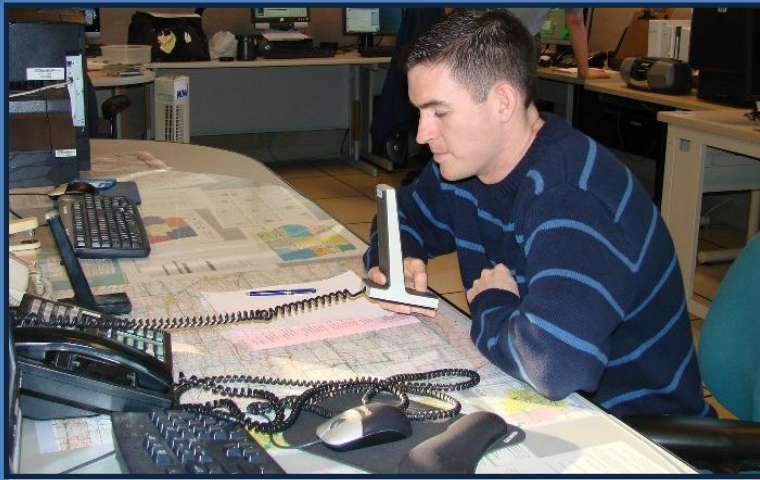
Understanding Our Role and Services

- Preparedness
- Forecast and warning services
- Dissemination of emergency messages



Our goal is for people to make informed and educated decisions for themselves!

Understanding Our Role and Services



In other words,
Our job is to help ***you*** do ***your*** job!



Building a Weather-Ready Nation

Understanding Our Role and Services



Convective Warning Timeline



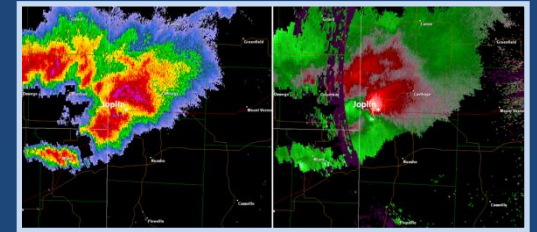
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Impact Based Warnings

Demonstration April 1-November 30, 2013

Key Points

- Changes to warnings which emphasize communication of risk, clarifying impacts and use of “tags” to make important information easier to find
- Demonstrated in parts of Kansas in Missouri in 2012 – *Demonstration expanded to 11 states in 2013 including Iowa*
- Based on Service Assessments of 2011 tornado outbreaks (Joplin, southeast U.S. tornado outbreak)



Courtesy NWS Springfield

Joplin, Mo EF5 Tornado



Building a Weather-Ready Nation

Impact Based Warnings

THE NATIONAL WEATHER SERVICE IN SPRINGFIELD HAS ISSUED A

- * TORNADO WARNING FOR...
NORTHWESTERN NEWTON COUNTY IN SOUTHWEST MISSOURI...
SOUTHEASTERN CHEROKEE COUNTY IN SOUTHEAST KANSAS...
SOUTHWESTERN JASPER COUNTY IN SOUTHWEST MISSOURI...
THIS INCLUDES THE CITY OF JOPLIN...
- * UNTIL 600 PM CDT.
- * AT 514 PM CDT...A TORNADO EMERGENCY FOR THE CITY OF JOPLIN.
A CONFIRMED LARGE AND DESTRUCTIVE TORNADO WAS LOCATED NEAR
BAXTER SPRINGS MOVING NORTHEAST AT 40 MPH.

THIS IS A PARTICULARLY DANGEROUS SITUATION.
HAZARD...DEADLY TORNADO AND BASEBALL SIZE HAIL
SOURCE...SPOTTERS AND LAW ENFORCEMENT CONFIRMED TORNADO.
SIGNIFICANT DAMAGE TO HOMES REPORTED IN THE OAKS
SUBDIVISION.

IMPACT...LIFE THREATENING SITUATION. EXTENSIVE DAMAGE TO HOMES
AND BUILDINGS...UPROOTED TREES AND DEBRIS WILL
RESTRICT ACCESS INTO MANY AREAS.

* OTHER LOCATIONS IN THE WARNING...JOPLIN.
PRECAUTIONARY/PREPAREDNESS ACTIONS...
IF YOU ARE IN OR NEAR JOPLIN TAKE COVER IMMEDIATELY!
&&
LAT...LON 3716 9479 3707 9426 3607 9430 3701 9479
TIME...MOT...LOC 2216Z 247DEG 36KT 3708 9470

TORNADO...OBSERVED
TORNADO DAMAGE THREAT...CATASTROPHIC
HAIL 2 75TN

Tornado Tag

TORNADO...RADAR INDICATED	Evidence on radar and near storm environment is supportive, but no confirmation.
TORNADO...OBSERVED	Tornado is confirmed by spotters, law enforcement, etc.

Tornado Damage Threat Tag

No Tag	Use most of the time, when tornado damage possible within the warning polygon. Tornado duration generally expected to be short-lived
TORNADO DAMAGE THREAT...CONSIDERABLE	Use rarely, when there is credible evidence that a tornado, capable of producing considerable damage, is imminent or ongoing. Tornado duration generally expected to be long lived
TORNADO DAMAGE THREAT...CATASTROPHIC	Use exceedingly rarely, when a severe threat to human life and catastrophic damage from a tornado is occurring, and will only be used when reliable sources confirm a violent tornado.. Tornado duration generally expected to be long lived

Tornado Tag In Severe Thunderstorm Warnings

TORNADO...POSSIBLE	A severe thunderstorm has some potential for producing a tornado although forecaster confidence is not high enough to issue a Tornado Warning.
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Building a Weather-Ready Nation

Impact Based Warnings

BULLETIN - IMMEDIATE BROADCAST REQUESTED
SEVERE THUNDERSTORM WARNING
NATIONAL WEATHER SERVICE DES MOINES IA
1005 PM CDT FRI JUL 1 2011

THE NATIONAL WEATHER SERVICE IN DES MOINES HAS ISSUED A

* SEVERE THUNDERSTORM WARNING FOR...
BUTLER COUNTY IN NORTH CENTRAL IOWA...
FRANKLIN COUNTY IN NORTH CENTRAL IOWA...
SOUTHEASTERN WRIGHT COUNTY IN NORTH CENTRAL IOWA...

* UNTIL 1045 PM CDT

* AT 1002 PM CDT...NATIONAL WEATHER SERVICE DOPPLER RADAR INDICATED A
SEVERE THUNDERSTORM CAPABLE OF PRODUCING QUARTER SIZE HAIL...AND
DESTRUCTIVE WINDS IN EXCESS OF 70 MPH. THIS STORM WAS LOCATED 14
MILES EAST OF CLARION...OR 14 MILES NORTHWEST OF IOWA FALLS...AND
MOVING EAST AT 55 MPH.

* LOCATIONS IMPACTED INCLUDE...
HAMPTON...ALLISON...GREENE...CLARKSVILLE...SHELL ROCK...COULTER...
LATIMER...GENEVA...HANSELL...DUMONT...AREDALE AND BRISTOW.

THIS INCLUDES INTERSTATE 35 BETWEEN MILE MARKERS 151 AND 173.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

PREPARE FOR DAMAGING WINDS...FALLING TREES AND FLYING DEBRIS. MOVE
INDOORS AND STAY AWAY FROM WINDOWS. IF YOU ARE IN A MOBILE HOME...
SEEK SHELTER IN A REINFORCED BUILDING.

&&

LAT...LON 4255 9319 4256 9357 4276 9367 4291 9308

4291 9255 4262 9255

TIME...MOT...LOC 0306Z 250DEG 47KT 4268 9342

WIND...HAIL 70MPH 1.00IN

CC

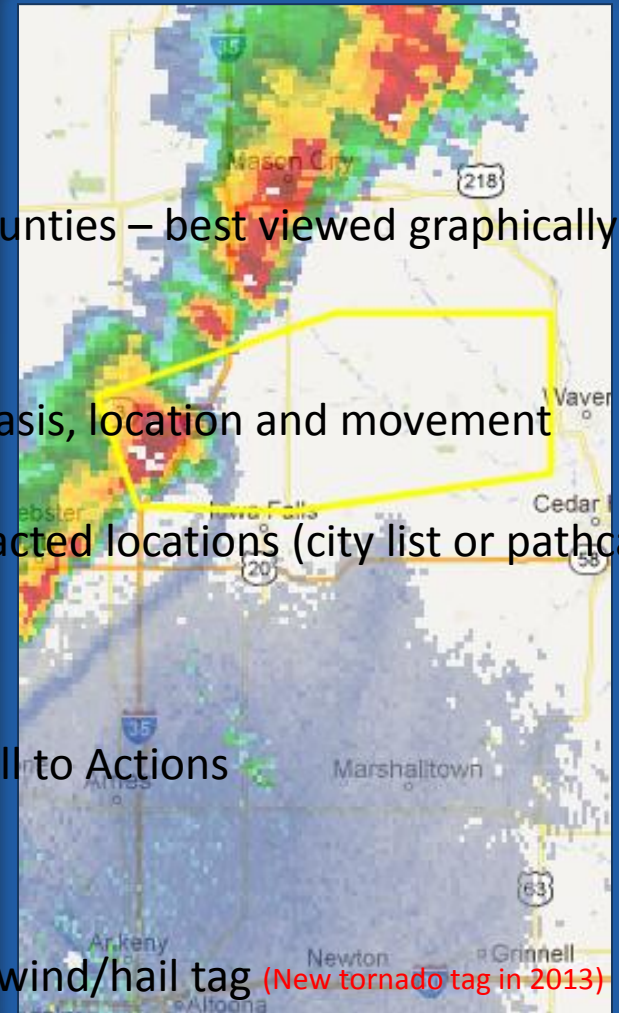
Counties – best viewed graphically

Basis, location and movement

Impacted locations (city list or pathcast)

Call to Actions

Max wind/hail tag (New tornado tag in 2013)



Severe Thunderstorm Warnings – 1 inch hail and/or 58 mph winds



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Impact Based Warnings

BULLETIN - EAS ACTIVATION REQUESTED
FLASH FLOOD WARNING
NATIONAL WEATHER SERVICE DES MOINES IA
923 PM CDT TUE AUG 10 2010

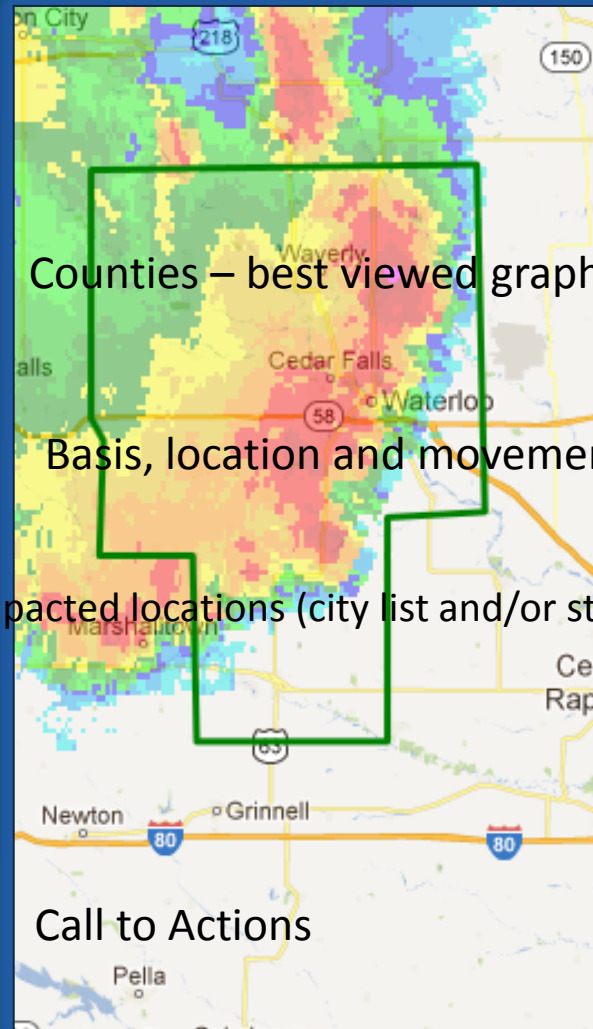
THE NATIONAL WEATHER SERVICE IN DES MOINES HAS ISSUED A

- * FLASH FLOOD WARNING FOR...
BLACK HAWK COUNTY IN NORTHEAST IOWA...
BREMER COUNTY IN NORTHEAST IOWA...
BUTLER COUNTY IN NORTH CENTRAL IOWA...
GRUNDY COUNTY IN CENTRAL IOWA...
TAMA COUNTY IN CENTRAL IOWA...
- * UNTIL 330 AM CDT WEDNESDAY
- * AT 922 PM CDT...NATIONAL WEATHER SERVICE DOPPLER RADAR INDICATED SLOW MOVING THUNDERSTORMS WITH VERY HEAVY RAINFALL ACROSS THE WARNED AREA. RAINFALL RATES OF 1 TO 2 INCHES PER HOUR CAN BE EXPECTED WITHIN THE WARNED AREA.
- * RUNOFF FROM THIS EXCESSIVE RAINFALL WILL CAUSE FLASH FLOODING TO OCCUR. SOME LOCATIONS THAT WILL EXPERIENCE FLOODING INCLUDE...
WATERLOO...ALLISON...APLINGTON...CEDAR FALLS...CLARKSVILLE...
CONRAD...DENVER...DYSART...EVANSDALE...GREENE...GRUNDY CENTER...
HUDSON...LA PORTE CITY...PARKERSBURG...REINBECK...SHELL ROCK...
SUMNER...TAMA...TOLEDO...TRIPOLI AND WAVERLY.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

ADDITIONAL RAINFALL AMOUNTS OF UP TO 3 INCHES ARE POSSIBLE IN THE WARNED AREA.

EXCESSIVE RUNOFF FROM HEAVY RAINFALL WILL CAUSE FLOODING OF SMALL CREEKS AND STREAMS...HIGHWAYS AND UNDERPASSES. ADDITIONALLY... COUNTRY ROADS AND FARMLANDS ALONG THE BANKS OF CREEKS...STREAMS AND OTHER LOW LYING AREAS ARE SUBJECT TO FLOODING.



Counties – best viewed graphically

Basis, location and movement

Impacted locations (city list and/or streams)

Call to Actions

Flash Flood Warnings – Imminent or occurring



Building a Weather-Ready Nation

Understanding Our Role and Services

“Emergencies”

- **Tornado Emergency** – A destructive confirmed tornado which will likely move into a populated area resulting in serious property damage and a high potential for loss of life!
- **Flash Flood** – A serious flash flood which will likely cause severe damage and a high potential for loss of life!



Severe Weather for Dispatchers

What is a Tornado?

- A violently rotating column of air attached to a cloud base and in contact with the ground.
- Exhibit rapid rotation and are most often laminar or smooth in appearance
- Can have visible and invisible funnels
- Usually vertically oriented



Courtesy of Jeff & Amy Ruhland



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Severe Weather for Dispatchers

Tornado Types and Terms

- **Wedge** – Large tornado
- **Invisible** – A tornado without a condensation funnel
- **Funnel** – Rotating column of air NOT on the ground
- **EF Rating** – Enhanced Fujita rating which indicates a tornadoes strength



Courtesy of Jeff & Amy Ruhland

Funnel Cloud



Invisible Tornado

Wedge
Tornado



Courtesy of Rod Donavon

Severe Weather

Tor

- Scud
- Rain



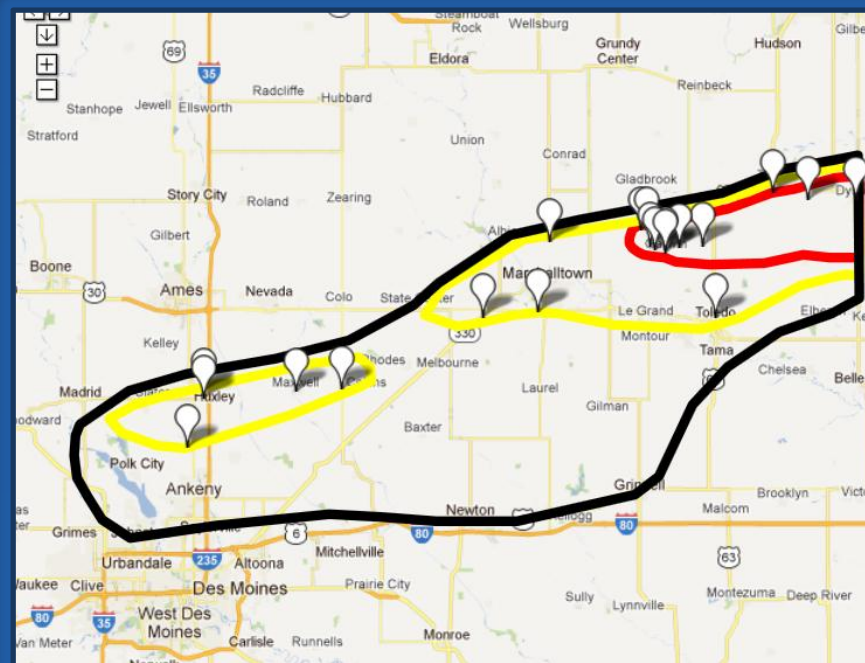
Nation



Severe Weather for Dispatchers

Severe Straight-Line Wind Storms

- Large area
- Damaging straight-line winds (over 100 mph!)
- Tornado-like damage!
- Signature cloud – Shelf cloud
- Siren considerations?



July 11, 2011 Derecho

Contour Legend Black: General Severe Winds (58 mph+)
Yellow: Winds of 70mph + Red: Winds of 100 mph +



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Severe Weather for Dispatchers



July 11, 2011 Derecho



Courtesy of Jim Snapp

Shelf Cloud – June, 2010

Severe Straight-Line Wind Storm Examples

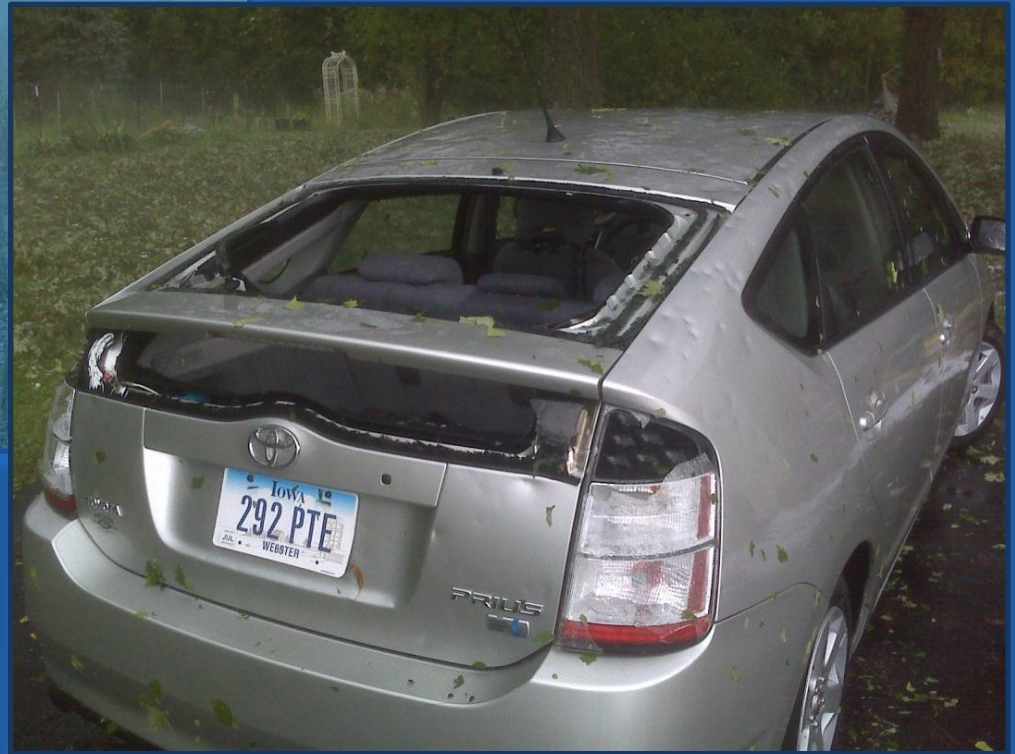


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Severe Weather for Dispatchers



Northern Iowa, August 9, 2009



Severe Hail Examples



Building a Weather-Ready Nation

Severe Weather for Dispatchers



Flash Flooding

- Difference between river and flash flooding
- Life threatening – especially at night
- Impact information often lacking in real-time



Photos Courtesy of Des Moines Register / KCCI

Mud Creek, August 2010



Building a Weather-Ready Nation

Severe Weather for Dispatchers



Winter Weather

- Snow / Ice amounts
- Hazardous Travel Conditions
- Winter weather impacts?

Photos Courtesy of Alliant Energy

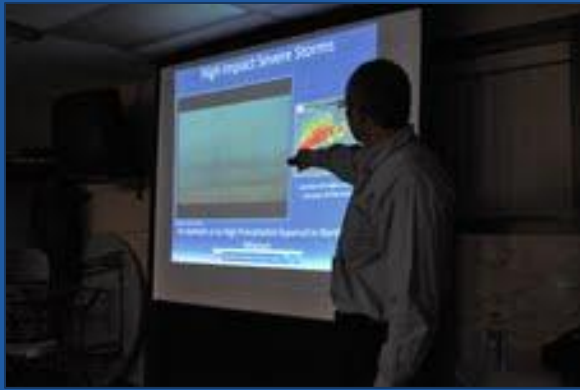


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Severe Weather for Dispatchers

Interested in Learning More?

- National Weather Service Storm Spotter Training
- Late February through April each spring
- Two hour training in the evening
- Check our website at www.weather.gov/dmx in January for the spotter training schedule
- Will be available via webinar in 2013



Why does the NWS Call?

It's all about information – You have it and we need it!

Remember our mission? The protection of lives and property.
We can't do it alone. We need you, the local experts!



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Why does the NWS call?

- Storm spotter information
 - Real-time spotter reports
 - Storm damage, injuries and fatalities
 - Assist with local warning decisions
- Coordination
 - “Heads-up” prior to storm
 - Authenticate non-weather emergency messages



When to Contact the NWS

- When you have weather-related reports
 - Spotter or public reports? Road closures? 911 outages?
- For specific needs (weather, hazmat support, other?)
- If you need clarification on a forecast or warning
- To schedule a visit/tour of the National Weather Service
- To let us know how an event went (feedback)

What Should be Reported?



Tornadoes

Funnel Clouds

Rotating Wall Clouds

Hail

Wind (≥ 50 mph)

Flooding

Heavy Rain (≥ 1 per hr)

Fatalities

Injuries

Damage



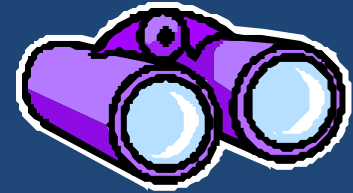
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What is a Good Spotter Report?

- Who? (Spotter or public?)
- What? (Nature of the report)
- Where? (reference nearest city, street address)

Can use Latitude/Longitude

- When? (time of event)
- Movement? (direction and speed, if applicable)
- Use proper terms
- Damage, injuries or deaths?
- Be as specific as possible!



When to Contact the NWS



It is simply not possible for you to “bug” us

More calls = High confidence

High confidence = Accurate and Timely Warnings

Remember that we are here to help you!



Building a Weather-Ready Nation

Optimizing Communications



Text (LETS)

Internet/e-mail

Phone
Voice/text

NWSChat

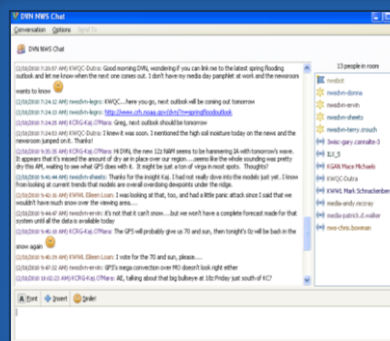
NAWAS/MICRN



Internet



Phone



NWSChat



MICRN



NAWAS



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Optimizing Communications

Email at:

[dmx.spotterreport @noaa.gov](mailto:dmx.spotterreport@noaa.gov)

This is a spotter reporting e-mail account. NWSChat is a preferred method for dispatchers to use, but the email account is an option



How to contact the NWS

Optimizing Communications

Spotter hotline SKYWARN
number:

1-800-SKYWARN (1-800-759-
9276)

We also receive spotter
reports via text messaging
at:

(515) 240-5515



How to contact the NWS

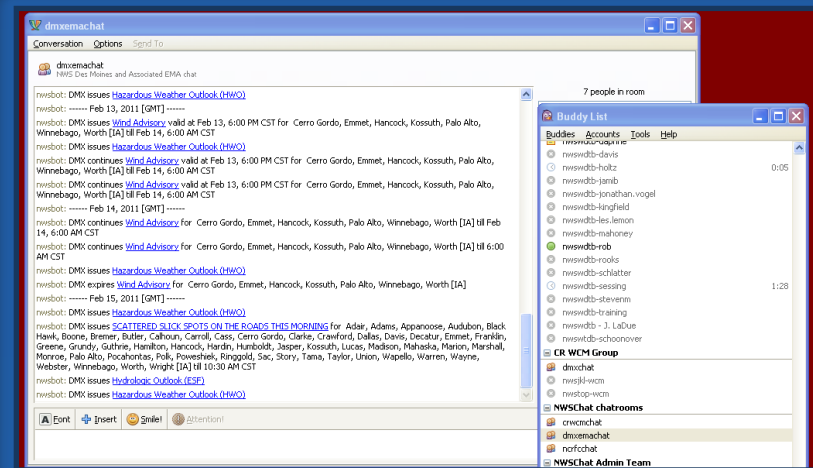


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NWSChat

- Private, secure chat and instant messaging service between NWS, dispatch offices and Emergency Managers.
- Ability to quickly share and view information from NWS and nearby counties. Includes automated weather feed which is the fastest way to receive NWS warnings.
- Feed includes ability to graphically display radar info and exact warning areas.
- Great for siren activations.
- For additional information contact Senior Forecaster Brad Small at:

bradley.small@noaa.gov



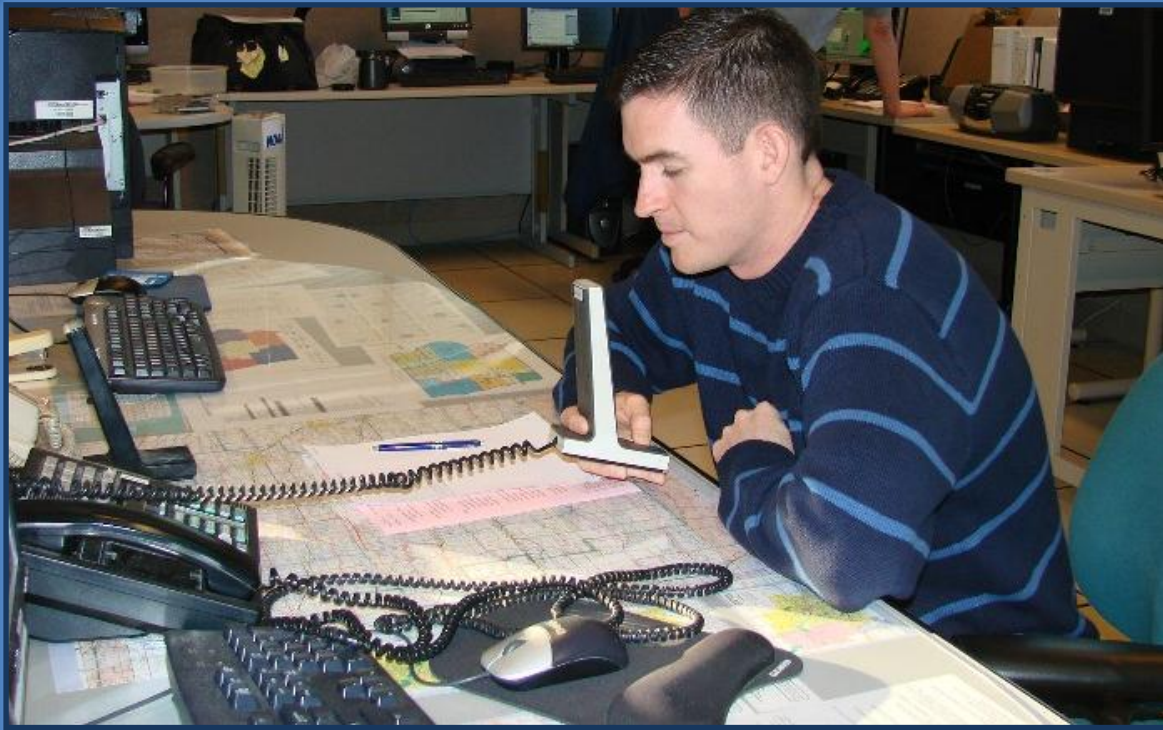
How to contact the NWS



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Optimizing Communications

MICRN – Metro Incident Command Radio Network



Eight central
Iowa counties
with over 40
agencies on the
network

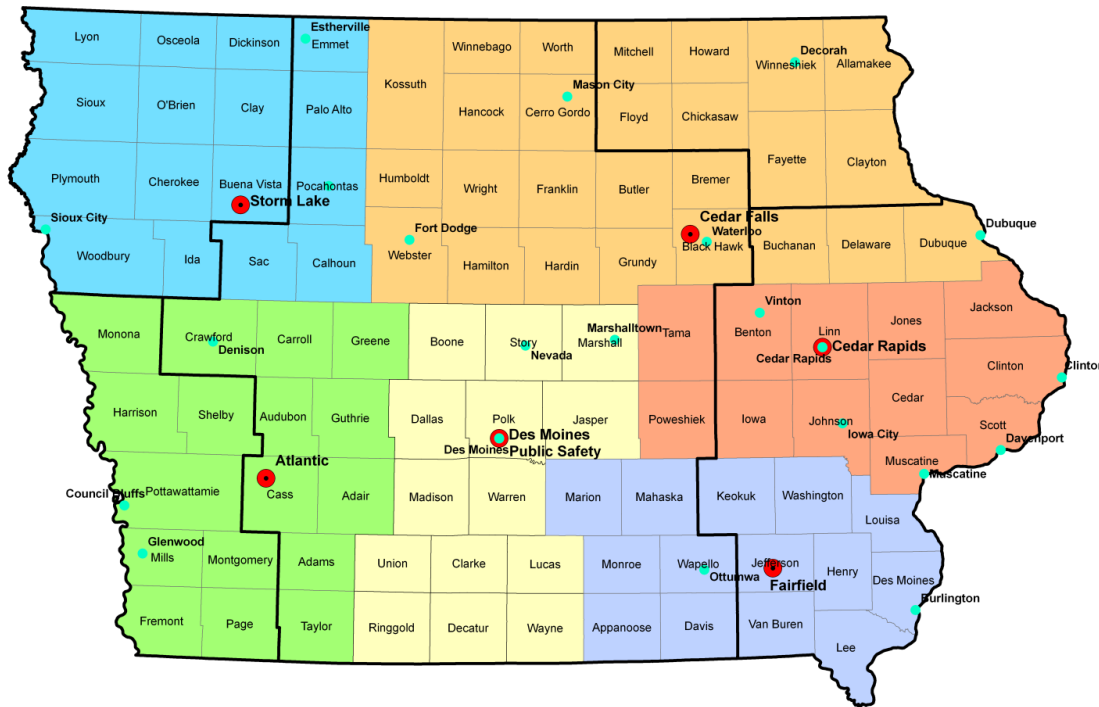
How to contact the NWS



Building a Weather-Ready Nation

Optimizing Communications

NAWAS/IOWAS



Iowa State Patrol
Warning Point areas
and IOWAS locations

Red- ISP Warning
Points

Blue-Other IOWAS
locations

*All NWS offices have
a line*

How to contact the NWS



Building a Weather-Ready Nation

Optimizing Communications

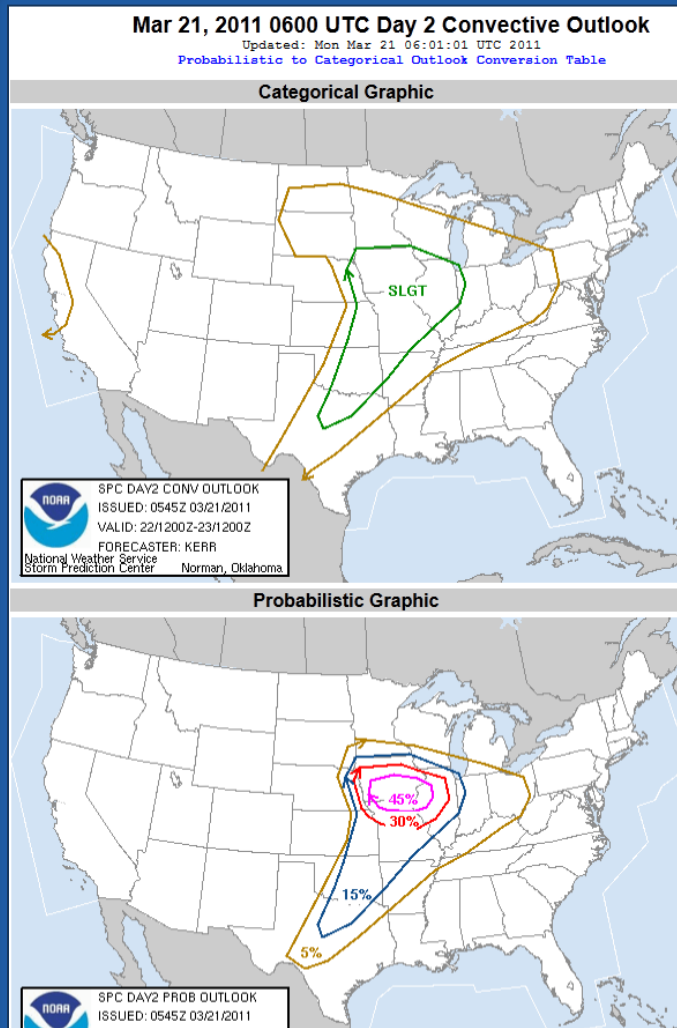
Social Media?

- **Twitter** – Use #iawx to send a Twitter report
- **Facebook** – NWS Des Moines has a Facebook page. It's a great page to follow. Storm, and storm damage pictures and videos should be posted



How to contact the NWS

Case Study – Tornado Event

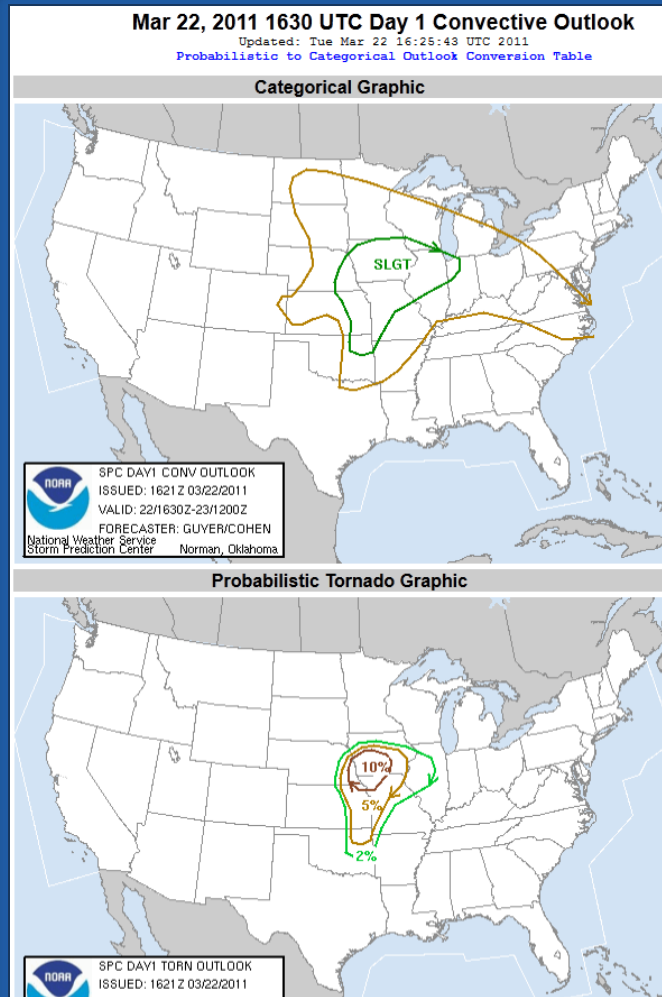


Outlook Phase: 12-72
hours in advance

- NWS Products – Storm Prediction Center (SPC) Convective Outlooks, NWS Des Moines Hazardous Weather Outlooks
- Enhanced NWS Decision Support Services - Severe weather risk may be highlighted in the NWS Weather Story

Madison County EF2 Tornado Event – March 22, 2011

Case Study – Tornado Event

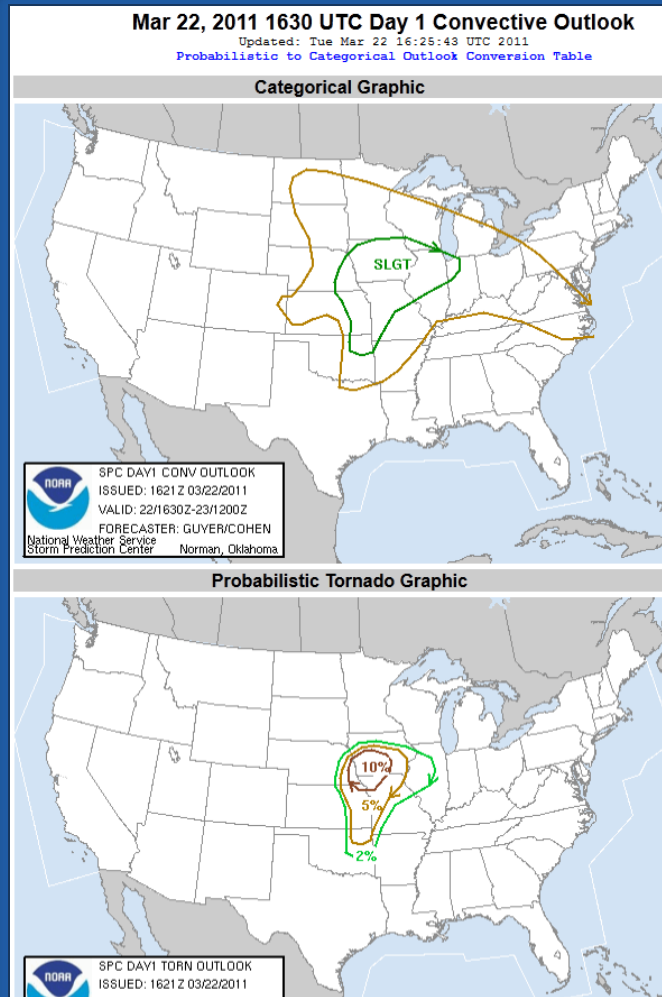


Outlook Phase: 6-12 hours in advance

- NWS Products – SPC Convective Outlooks, NWS Des Moines Hazardous Weather Outlooks
- Enhanced NWS Decision Support Services - Headlined on DMX website, risk sent through Social Media, emergency manager webinar held, multi-media web briefing on NWS website

Madison County EF2 Tornado Event – March 22, 2011

Case Study – Tornado Event



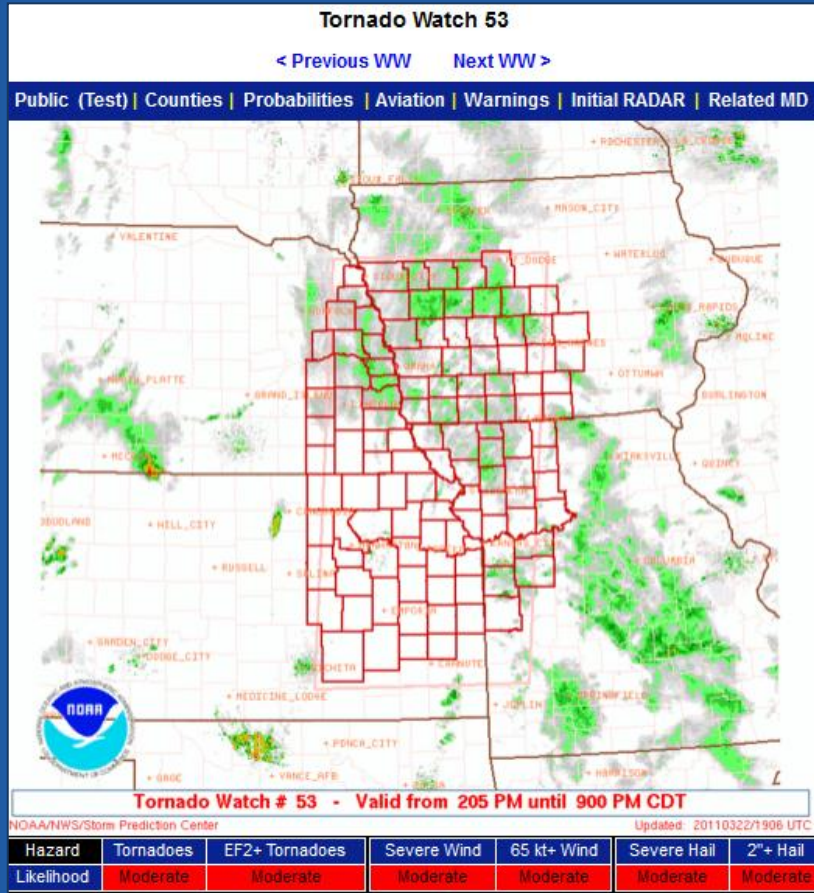
Outlook Phase: 6-12 hours in advance

- Possible dispatcher actions (with respect to the NWS)
 - Notification of spotter groups?
 - Watch NWS web briefing?
 - Other coordination or actions?
 - Verify NWS communications such as NWSChat account

Madison County EF2 Tornado Event – March 22, 2011

Case Study – Tornado Event

Watch Phase: 0-6 hours in advance



NWS Products – SPC Watches (is it a Potentially Dangerous Situation (PDS) watch?), possible NWS Des Moines Special Weather Statements (SPS)

Enhanced NWS Decision Support Services – “Occasional” NWS calls to dispatch offices to coordinate prior to warning, risk highlighted on website and possibly through Social Media

Madison County EF2 Tornado Event – March 22, 2011



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Case Study – Tornado Event

Watch Phase: 0-6 hours in advance

- Possible dispatcher actions (with respect to the NWS) –
 - Notification of spotter groups?
 - Watch dissemination?
 - Coordinate with emergency manager or spotter net controller (amateur radio?)
 - Contact NWS with questions?
Phone, Chat, MICRN, etc.

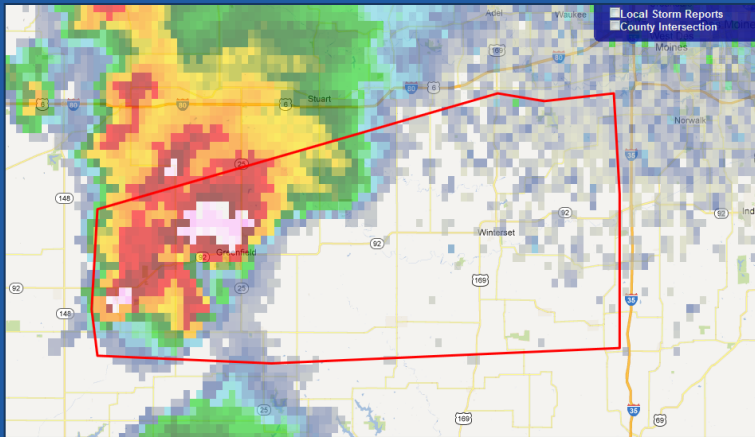


NWS Des Moines communications
desk, March 22, 2011

Madison County EF2 Tornado Event – March 22, 2011

Case Study – Tornado Event

Warning Phase: 0-1 hour in advance



Courtesy of Iowa Environmental Mesonet

NWS Tornado Warning issued at 544
PM CDT, March 22, 2011

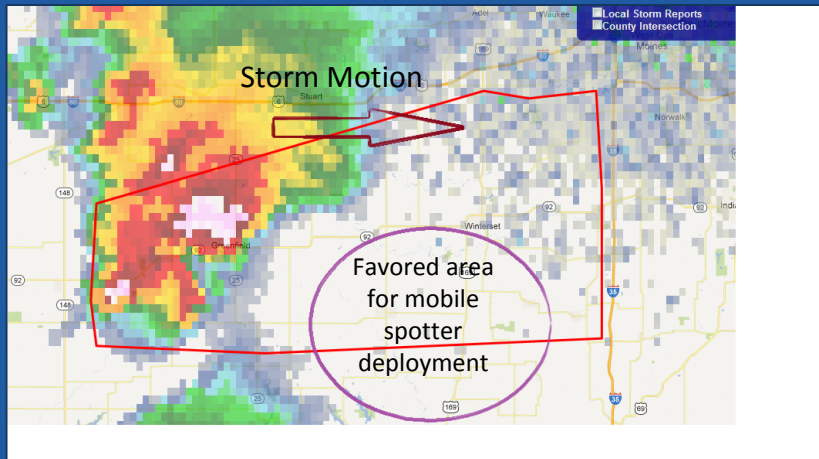
- NWS Products – NWS warnings, Local Storm Reports (LSR), watch updates
- Enhanced NWS Decision Support Services – “Occasional” NWS calls to dispatch offices to coordinate during warnings, dissemination of warning products, risk highlighted on website and possibly through Social Media

Madison County EF2 Tornado Event – March 22, 2011

Case Study – Tornado Event

Warning Phase: 0-1 hour in advance

- Possible dispatcher actions (with respect to the NWS) -
 - Relaying spotter reports to NWS – *using fastest communication system?*
 - Local warning dissemination – *siren activations?*
 - Coordinate with emergency manager or spotter net controller (amateur radio?)
- *are they in charge of relaying reports to NWS?*
 - Contact NWS with questions?
Phone, Chat, MICRN, etc.



Courtesy of Iowa Environmental Mesonet

NWS Tornado Warning issued at 444 PM
March 22, 2011

Madison County EF2 Tornado Event – March 22, 2011



Building a Weather-Ready Nation

Case Study – Tornado Event



Tornado in southwest Iowa, March 22, 2011
Brad Nelson

Warning Phase: Tornado in progress

- NWS Products – NWS Severe Weather Statements (SVS), LSR's, new warnings?, “**emergency**” wording in warning/statement?
- Enhanced NWS Decision Support Services – “Occasional” NWS calls to dispatch offices to coordinate during warnings, dissemination of warning products, risk highlighted on website and possibly through Social Media



NWS Des Moines Warning Team
March 22, 2011

Madison County EF2 Tornado Event – March 22, 2011

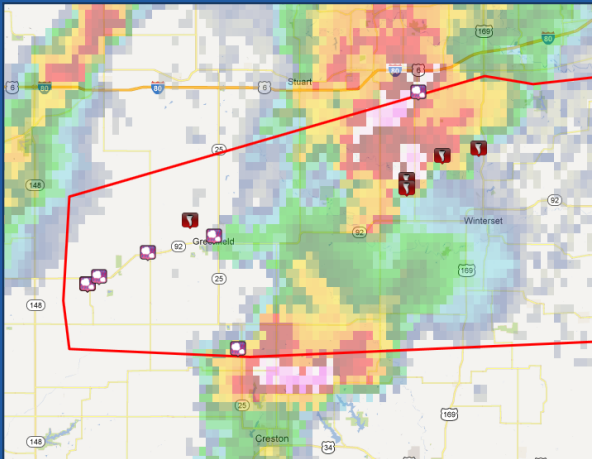


Building a Weather-Ready Nation

Case Study – Tornado Event



Tornado in southwest Iowa, March 22, 2011
Brad Nelson



Radar and warning display valid at 614 PM CDT. Reported hail and tornado locations provided

Warning Phase: Tornado in progress

- Possible dispatcher actions (with respect to the NWS) -
 - Relaying spotter reports to NWS – *using fastest communication system?*
 - Local warning dissemination – *siren activations?*
 - Coordinate with emergency manager or spotter net controller (amateur radio?) – *are they in charge of relaying reports to NWS?*
 - Contact NWS with questions? *Phone, Chat, MICRN, etc.*

Madison County EF2 Tornado Event – March 22, 2011

Case Study – Tornado Event

Post Event

- NWS Products – Watch/Warnings cancelled or expired, LSR's issued Enhanced NWS Decision Support Services – Possible call to the county to finalize initial damage estimates, coordination with the county concerning damage survey activities, conducting survey in coordination with the emergency manager the following day(s). Storm Survey results are released to the media and placed on the NWS website.



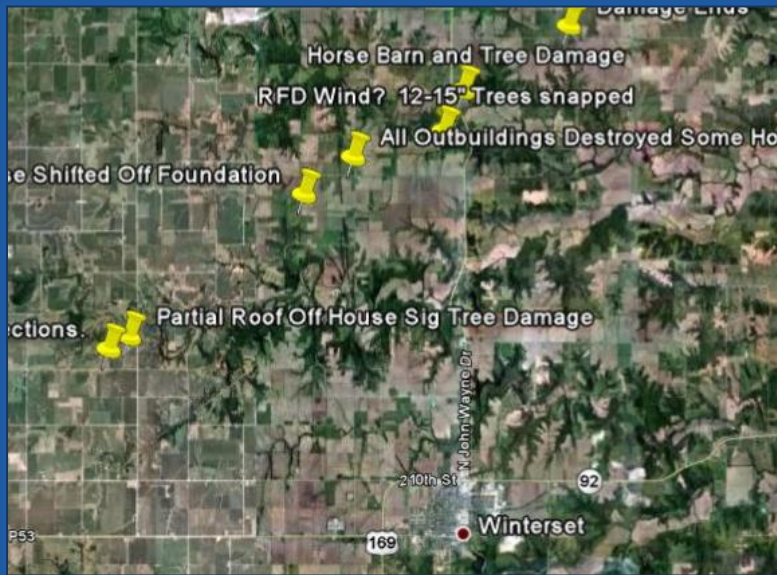
NWS Des Moines Storm Surveyor providing a media interview in the field, May, 2011

Madison County EF2 Tornado Event – March 22, 2011



Building a Weather-Ready Nation

Case Study – Tornado Event



Tornado damage locations



Tornado damage

Storm Survey results for Madison County March 22, 2011

- EF2 Tornado – Peak wind of 120 mph
- Length – 11 miles
- No injuries or deaths!

Help us improve...

- What could we do better?
- Recent Problems?
- Let us know...
- Call or E-mail: Jeff Johnson

National Weather Service

Des Moines, IA

jeff.johnson@noaa.gov

515-270-4501 Ext.726



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Thank you!!!



National Weather Service
Des Moines, IA